

Utilizing Graphic Organizers as a Process in Assisting Summary Writing

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Abstract: Graphic organizers help learners in understanding the content of a text by classifying and modelling ideas in the text. The objective of this study is to investigate whether there is a significant difference in the overall mean the scores for summarization of the experimental group (using graphic organizers) compared with the control group using (conventional method) in the post-test. This research used quasi-experimental design. Pupils from the experimental group used bubble maps and the tree maps as graphic organizers. This sample involved 127 Form Four pupils in Cheras, Selangor. The study was carried out over a period of four weeks. Two types of instruments were used to collect data, namely the pre-test, post-test and the semi-structured interview questions. Summary writing test was used as a pre-test and post-test in the study. The quantitative data was analyzed using the independent samples t-test and the qualitative data were analyzed using the emerging themes. The findings indicate that the experimental group performed significantly higher than the control group in the mean score for their overall summary writing because pupils were able to describe, categorize and classify details clearly in summary writing. The control group encountered problems to identify the content of a passage and they have to rely on their memories to write a summary. This study has crucial pedagogical implication because it reveals that the utilization of graphic organizers in summary writing benefits pupils in ESL summary writing.

Keywords: Graphic organizers, Summary writing, Form four pupils, ESL, Comprehension, Bubble maps, Tree maps.

I. Introduction

Summary engages to multiple forms of reading, and able to improve the skill to comprehend a reading text. A study conducted by Hamzah et. al. (2009) found that ESL learners are unable to use the language because of a lack of learning strategies. Therefore, the study focuses on pupils achievement in using graphic organizers in assisting summarization of reading comprehension texts. Through many years of observation, it is realized that most pupils lack of organizing information when reading. Therefore, utilizing graphic organizers in summary writings can benefited pupils because it is a visual tool for visual learners in comprehending a reading text which can make comprehension easy for pupils. Kintsch et. al. (2005) believe that comprehension skills aided by graphic organizers help pupils to develop reading abilities. Thus, incorporating graphic organizers in reading comprehension helps pupils to develop their comprehension skills, especially in summary writing. Osborne (2010) identifies pupils' major reading problem arises when they are worried about understanding every single word of a text they are reading. As a result, they do not get the general idea from the text, and fail to connect the ideas. Thus, this result to fragmental understanding of a text. Using graphic organizers helps them the skill of classifying information of a text under a schema. Once they master this skill, pupils can divide the text into main ideas, supporting details, topic sentences, data, facts, opinion, illustration and examples. This leads to a holistic comprehension and understanding of the text before summarizing it.

Graphic organizers are also tools to teach information processing skills, models for categorizing information, methodical thinking skills, as well as interaction skills (Ellis, 2004). This study explores how classifying a reading text using graphic organizers can show better results compared to reading a text without using graphic organizers. Current study was conducted based on two purposes. First, to investigate whether there is a significant difference in the overall mean score for summarization of the experimental group (using graphic organizers) compared with the control group using (conventional method) in the post-test. Second, to explore pupils' views (experimental group and the control group) on the utilization on graphic organizers and conventional method in writing summary.

1.1 Research Questions

The following questions guides the research study:

1. Is there a significant difference in the overall mean score for summary writing of the experimental group (using graphic organizers) compared with the control group using (conventional method) in the post-test?
2. What are the pupils' views (experimental group) on the utilization on graphic organizers in writing summary?
3. What are the pupils' views (control group) on the utilization of conventional method in writing summary?

II. Review Of Literature

Graphic organizers in education reflects the theories of cognitive psychology. The use of diagrams that is graphic organizers is presented. There are four types to choose from, depending on lesson content and instructional objectives: one, Hierarchical Organizers, which present main ideas and supporting details; two, Comparative Organizers, which illustrate a series of steps or events; three, Sequential Organizers, which illustrate a series of steps or events; and, four, Diagrams, which depict actual objects and systems in the real worlds of science and social studies. There are eight tools in learning process suggested by Hyerle (2004) that can be used to assist pupils' thinking processes in concept map development. They are the circle map (the basic definition of a concept in context), the bubble map (describe qualities), the double-bubble map (used to compare and contrast the qualities of two subjects), the tree map (used for classifying, main ideas, supporting ideas and details), the brace map (organize the parts and subparts of the whole), the flow map (used for sequencing), the multi-flow map (used for cause and effect), and the bridge map (to illustrate analogies).

Dye (2000) defines graphic organizer is a way to effectively arrange the content of a text, while Ciascai (2009) and Simmons (1988) illustrate it as decoding its meaning for building and systematizing knowledge. It is described as the representation of the thought process of the mind, thus, illustrate the key parts of a whole and their relations, so that allowing a holistic understanding that words alone cannot express (Jiang et. al., 2007). Pupils who have difficulty in comprehending a text has to be taught explicitly to perform applicable strategies in order that their reading comprehension improves. Kirylo et. al. (2000) state that to pre-teach the overall concepts and terms is best to permit the mental framework for building new knowledge structures. The construction of graphic organizers is to activate prior knowledge and to demonstrate the connection that exists among the concepts and to build the awareness of texts organization is seen as an important part of a reader's overall comprehension abilities. Jiang et al. (2007) state that pupils can be trained to recognize discourse structure in texts through the use of graphic organizers, and it gives visual representation of information in the text. Graphic organizers need not be complicated. Graphic organizers should be simple and able to assist pupils in understanding a concept clearly.

Researchers have proven that pupils' reading and understanding abilities where pupils' comprehension and detention of information from expository texts are increased with the use of various graphic organizer methodologies (Jiang et. al., 2007; Trabasso et. al., 2002; Bellanca et. al, 1991& Pearson et. al. 1991). Graphic organizer can be used to stimulate memory recall and enable the learner to make connections. In constructing graphic organizers, pupils have a potential to increase in comprehension and note taking (Katayama et. al., 2005). Graphic organizers show pupils how ideas and information are related and organized (Jiang, 2012). This learning activity allows pupils to cooperatively reflect about thinking for graphic organizers and reflect the structure of the text (Jiang, 2012). Pupils then need to make hypotheses about the structure and mentally search the possible graphic organizer that best fits their task (Jiang et. al., 2007). In addition, the pupils are able to monitor their comprehension as they read (Koda, 2007). After the pupils completed the graphic organizer, they should construct a summary based on the information that is in the graphic organizer.

Graphic organizers have shown to be beneficial for pupils across age groups from pre-school to adult education (Nikolai, 2009), and graphic organizers can facilitate discussion process (Gregory et. al., 2007). Utilization of graphic organizers is advantageous because pupils are more likely to understand and remember the information that is being taught by separating what is important in the text and summarize the text in their own words which enhance their comprehension (Robinson, et. al., 2006). Furthermore, the graphic organizers show the structure of the information which accelerate learning at more complex levels information processing is much easier. Finally, other skills such as reading, writing and communication as well as analytical thinking, critical thinking, and creative thinking skills can improve when pupils learn to recollect patterns of thinking, formulate, and utilize graphic organizers (Ellis, 2004). A variety of graphic organizer can be effective when used in conjunction with a diversity of teaching styles, teaching a wide array of subjects and developing literacy and cognitive skills of pupils.

Graphic organizers are excellent for teaching pupils about relationships of information in a text. Smith (2010) illustrates that by participating in the process of completing a graphic organizer, pupils deepen their understanding of the text, as well as receiving guided practice both in how to complete a graphic organizer and how to use them to increase comprehension which can help them in summarization. Marchand-Martella et. al. (1998) agree that graphic organizers visually depict key facts, concepts and important relationships. According to Bellanca et. al. (1991), these visual tools are also referred to as cognitive maps, visual displays and advance organizers. These cognitive tools can be used to see what pupils are thinking and how they are thinking. They help pupils to organize, reorganize, revise and modify connections they are making as they process information. Using graphic organizers, pupils learn how to bridge prior knowledge to the new information (Kirylo et al., 2000; Banikowski, 1999; Robinson, 1998 & Bellanca et. al., 1991). In addition, DiCecco et. al. (2002) found that it is not enough for pupils to acquire factual knowledge; they must also learn how concepts are connected or related to each other. As a result, graphic organizers visual representation of the text structure helps in writing a summary (Praveen, et. al., 2013), and provides pupils opportunities to become strategic readers to facilitate their reading comprehension and summary writing (Jiang, 2012). The cognitive organizers provide visual representations that make the invisible talk visible. Utilizing graphic organizers as a tool assists in fostering the goal of reading instruction; for pupils to comprehend and become independent readers and learners (Kirylo et al, 2000).

Some pupils may initially have trouble building and using concept maps because these difficulties may occur from years of rote-mode practice rather than intellectual differences (Novak et. al., 2008). One way to improve pupils' knowledge from rote skills to building connections is through the use of learning strategies. Graphic organizers, knowledge maps and concept maps are the three types of spatial learning strategies suggested by Chang et. al. (2002). Ellis (2004) reckons that graphic organizers are communication devices that show the organization or structure of concepts as well as relationships between concepts, which helps the brain works to classify information in ordered outlines and learning methods. There are various sources of research support that this process significantly expands the learning capability of learners (Tsien, 2007 & Bransford et. al., 1999). Teachers can create graphic organizers and use them in a variety of ways (Luckner et. al., 2001). When ideas, points of view, and opinions are discussed, the level of pupils' comprehension increase (Glazer, 2000). It is important that pupils interact with pupils to scaffold higher order thinking discussions.

According to Foote (2001), higher order thinking based on Bloom's Taxonomy objectives, describes an increased level of cognitive demand required by a pupil to answer a question. Moreover, concept maps engage pupils in powerful information processing and higher order thinking skills (Ellis, 2004). After exposure to the text, organizing information onto graphic allows teachers to implement a variety of robust activities including in depth discussions, prioritizations, elaborations, debates, drawing conclusions, making connections to other ideas, inferences and extending pupils' understandings. Gauthier (2002) states that the development of pupils' comprehension of text relies heavily upon the types of questions asked by the teacher. The important strength of utilizing graphic organizers during reading instruction is that they foster a classroom community while engaging in a meaningful discussion that makes connections from prior knowledge to new knowledge, leading to comprehension, which in turn ease summarization of the text.

The research by Jiang et. al. (2007) conclude that graphic organizers have shown to assist in the comprehension and recollection of main ideas for immediate text; being the creator of the graphic organizer also impacts its usefulness in comprehension; graphic post-organizers produced greater effects than pre-reading tasks or graphic advance organizers in general. In addition, graphic organizer training combined with summarization training seemed to facilitate better results; and the length of time permitted and educational level of the pupils are important issues. The research by Jiang et. al. (2007) discover that pupils require time and repeated exposure to develop their abilities to recognize discourse in organizing the texts. De Simone (2007) and Chang et. al. (2002) suggest that drawing and making revisions to the graphic organizers may be time consuming; though helpful, this often requires that the entire process be restarted from scratch. The educators belief behind the use of graphic organizers for reading development is that pupils need steady experience to practice with graphic organizers (Jiang et al., 2007).

Using graphic organizers can improved pupils' performance in comprehension. It able to highlight essential information (Hartman, 2002), stimulate memory recall and enable the pupils to make connections (Nikolai, 2009; Robinson, et. al., 2006). Thus, a representation of the thought process of the mind. The comprehension processes prompted by graphic organizers is seen effective in promoting autonomous learning and enhancing the depth of learning. Graphic organizers allow teachers to implement a variety of robust activities including in depth discussions, prioritizations, elaborations, debates, drawing conclusions, making connections to other ideas, inferences and extending pupils' understandings. Graphic organizers help pupils to develop the ability to doodle, draw or make marks of any representation (Thousand, et. al., 2007), fosters

connections between information as well as helping pupils to grasp abstract concepts (Nikolai, 2009), stimulate interest (Hartman, 2002), aids in information retention and organizational skills (Hartman, 2002), highlight essential information (Hartman, 2002), and directs pupils' attention (Thousand, et. al., 2007). In addition, teachers receive an insight into pupils' prior knowledge (Nikolai, 2009) which allows teachers and pupils to mould new information to fit into previous schemas (Nikolai, 2009). Although graphic organizers help pupils performed better in summarizing texts (Duke et. al., 2002), they are not the answer to raise test scores Ellis (2004).

Current study focuses on the utilization of bubble maps and tree maps in teaching summary writing over a period of four weeks. Prior to the intervention the researcher trained the teacher teaching the experimental group on how to utilize the graphic organizers, and teach the pupils in doing bubble maps and tree maps in organizing the information in the text, making prioritizations, revise and making connections in the process of doing summary writing.

III. METHODOLOGY

The study employed a quasi experimental design. The experimental group was taught summary writing using the graphic organizers over a period of four weeks by using bubble map and tree map while the control was taught using the conventional method. The sample were chosen as intact groups from four classes of Form Four pupils. The 127 Form Four pupils were divided into two groups (64 in the experimental group and 63 in the control group). Both the groups are taught by two different teachers.

The quantitative data was collected from the pre-test and post-test and the qualitative data was collected using focus group interviews. The independent samples t-test was used to analyze the quantitative data and the qualitative data was analyzed using emerging themes.

IV. Results And Discussion

The results of the quantitative and qualitative data are presented according to the research questions.

RQ1: Is there a significant difference in the overall mean score for summarization of the experimental group (using graphic organizers) compared with the control group using (conventional method) in the post-test?

Table 1: *Independent samples t-test overall mean scores of the summary in the pre-test*

Group	N	Mean	Std. Deviation	Mean Difference	t-value	df	p-value
Experimental Group	64	7.08	2.64	0.47	0.97	127	0.33
Control Group	63	6.60	2.85				

Level of significance $p < 0.05$

Table 1 shows that the mean scores of the summary writing in the pre-test of the experimental group scored higher (Mean=7.08, SD=2.64) than the control group (Mean=6.60, SD=2.85). Findings from the independent sample t-test showed that the overall score of summary writing in the pre-test (Mean difference=0.47, $t=0.97$, $df=127$, $p=0.33$). Therefore, the findings show no significant difference in the overall mean score for summarization of the experimental group (using graphic organizers) compared with the control group using (conventional method) in the pre-test.

Table 2: *Independent samples t-test overall mean scores of the summary in the post-test*

Group	N	Mean	Std. Deviation	Mean Difference	t-value	df	p-value
Experimental Group	64	9.78	2.64	1.81	3.54	127	0.00
Control Group	63	7.97	3.11				

Level of significance $p < 0.05$

Table 2 shows that the mean scores of the summary writing in the post-test of the experimental group scored higher (Mean=9.78, SD=2.64) than the control group (Mean=7.97, SD=3.11). Findings from the independent sample t-test showed that the overall score of summary writing in the post-test (Mean difference=1.81, $t=3.54$, $df=127$, $p=0.00$). Therefore, the findings answer the Research Question 1. These findings are consistent with findings by Robinson, et. al. (2006) which suggest that graphic organizers had a positive impact on the pupils in writing summary. At the same time the p-value showed a significant difference in the post-test for the experimental group against the control group. These positive results statistically confirmed that pupils performed better by learning through graphic organizers (Duke et al., 2002), and its utilization can assist pupils in writing summary. The control group did not perform well in the post-test because the pupils were lacking in their learning strategies compared with the experimental group. These findings implied the claim by Hamzah et. al. (2009) and Novak et. al. (2008) that ESL learners are unable to organize their summary writing due to lack of effective learning strategies.

In addition, the qualitative data aim is to investigate on the pupils' perceptions on using graphic organizers as a visual tool to write a summary. To make the comparison, the experimental group and the control group imparted useful information that condition to this study. Three interview questions addressed to both groups.

RQ2: What are the pupils' views (experimental group) on the utilization on graphic organizers in writing summary?

Experimental Group

Interview question 1: What are the problems you encounter when writing a summary?

Pupil A

...to identify the points accurately and to expand the points using own words

Pupil B

...I would have problems to write about points which I have no knowledge of or not clear of... which happens rarely.

Pupil C

... I always over-write the number of words needed by based the question.

From the pupils responses, it is obvious that before using graphic organizers, the pupils of the experimental encountered problems in identifying points to write a summary (pupil A and pupil B). When writing a summary, the pupils also found it difficult to comply to the word limitation of the summary specification (pupil C). They tend to over-write the numbers of words limited by the question. On top of that, the pupils had difficulties in using their own words when rephrasing the suitable points.

Interview question 2: Before using graphic organizers what method did you use summary writing? Explain why.

Pupil A

...highlights the points. No, sometimes I miss the points that I highlighted when writing summary. Also, I always copy the words from the passage while writing.

Pupil B

My method was to read the text carefully to find the keyword. No because the paragraphs sometimes troubles me to write with the points if, especially, I have no knowledge of the subject matter.

Pupil C

I used to highlight and number the suitable points on the text. Not sure....I change the word order and try to have the same meaning but different arrangement.

With regards to the method used by pupils prior to using graphic organizers, the pupils A and C highlighted and numbered the main points while pupil B would read the text carefully and find the key words to write the summary.

Interview question 3: Do you find graphic organizers is helpful in summary writing? Explain why.

Pupil A

Yes, so we can see clearly what to write according to the question. It is very helpful because it easy for me to find the answer very fast, it save my time especially during the exam and it also very systematic. Graphic organizers is easy and I can understand well

Pupil B

Yes because the image may contain background images that helps me imagine other things that matches the background it gives a clearer idea on how the text can be interpreted for me to write the summary.

Pupil C

Yes, this graphic organizers very helpful because I can see if I'm on the right track. It is suitable to me but this graphic organizers consumed much times on it. I scare that I have not enough time to accomplish all my question during exam. It is also helpful because I can see if I'm on the right track. I can see the connection of every point clearly. When writing the summary, I can know if I missed a point or if I changed the meaning of the summary. Also, I can see my progress on summary writing.

The responses from pupils from the experimental group indicate that graphic organizers benefit them in various areas. In utilizing graphic organizers, pupils are able to see the important point clearly (pupil A, pupil B and pupil C). In addition, pupils find it time friendly as using graphic organizers is systematic (pupil A) which also contributes to easy understanding of the text (pupil A), and it gives them a clearer idea in interpreting the text (pupil B) before writing a summary. Although some pupils may find using graphic organizers can be time consuming, pupils are able to see the connection of every important points, and they will not miss a single point and are able to monitor their summary writing progress (pupil C).

RQ3: What are the pupils' views (control group) on the utilization of conventional method in writing summary?

Control Group

Interview question 1: What are the problems you encounter when writing a summary?

Pupil D

I do not have much problems, just when identifying the content it sometimes gets quite tricky. I only find it difficult to arrange my points before I write it.

Pupil E

When I write a summary, I often find myself recalling the format for summary writing.

Pupil F

My problem is I always doing over-writing the numbers of words needed....also I don't know meaning of some words

On the other hand, the control group find it difficult (pupil D) to identify the content of a passage when reading a text for summary writing. To them summary writing can be tricky as it is difficult to arrange the important points. In addition, the pupils often have to recall the requirement of the summary question as they are answering the question (pupil E). Thus, the pupils are at a disadvantage for not using graphic organizers because graphic organizers provide a concrete image of the important points, whereas, these students have to only rely on their memories. Similarly, the pupils find it difficult to abide to the word limitation (pupil F), therefore, they tend to over-write.

Interview question 2: What method do you use when reading a passage in summarization? Is the method helpful? Explain why.

Pupil D

I would read the passage first and then I find the main points. It is very hard for me because I need to read it twice. A method I used was by trying to search related details from the passage and circle them.

Pupil E

I read through the first time. Then, I read it the second time while highlighting the keywords to understand or memorize the passage better because during the first time reading the passage, I understand the big picture of the passage. However, during the second reading I will be able to get to the details of the passage which enhances my understanding.

Pupil F

I used to highlight the suitable points based on the text in order to change to change it to the same meaning but different arrangement.

Since the pupils are not using graphic organizers, as they read a text, they identify the main points (pupil D) or highlight the keywords (pupil E) or highlight the suitable points (pupil F). In their second reading, the pupils would circle the related suitable points (pupil D) or rephrase the suitable points (pupil F) to write the summary. However, the pupils might accidentally change the meaning while rephrasing the sentences. Also, some pupils (pupil E) rely on their understanding of the passage or get the big picture of the passage during the first reading, and enhances it on the second reading to write the summary.

Interview question 3: Do you think that the teacher should use some other methods when reading a passage in summarization? Please explain.

Pupil D

Yes, I think teacher can use other methods to make sure students can be more understand about summary.

Pupil E

Yes. Since there are many categories of learners, teachers should use other methods in teaching to guide the students through the learning process. For example, highlighting the keywords or draw a mind map or use the information given to make their own storyline to help memories to write summary.

Pupil F

I don't know. Maybe the teacher can show me how to clearly arrange the points I found for the summary. Now I find it difficult to choose sometimes what to include and what to leave out when I'm writing my summary. I get confuse many times. But, I like my way because I am used my technics... a habit. I actually write short notes.

Due to the difficulties the control group faces, all the pupils collectively agree (pupil D, pupil E and pupil F) that teachers should teach other methods that are clearer for students to understand a passage to help them to write a summary (pupil D). They suggest that teachers can teach pupils to highlight the keywords, or draw a mind map, or even draw a storyline using the suitable points to help write a summary (pupil E). Some pupils (pupil F) find it difficult to change their method in summary writing as it has become a habit, although they find it difficult to identify the main points, they do get confused when using their present method. They are more comfortable in writing short notes (pupil F).

The study posits that the overall mean score in the post-test for the experimental group is significantly higher than the mean score of the control group. Utilization of graphic organizers enable them to identify and organize the suitable points clearly (Jiang et al., 2007; Biktimirov et. al., 2006; Duke et al., 2002; Buzan et. al., 2000; Buzan, 1974) and it helps them to write a good summary. At the same time, the pupils in the control group are not satisfy with their present method that is the conventional method to write a summary. They suggest that teachers should employ mind map or other methods to assist them in summary writing. Findings from interviews reveal that graphic organizers is powerful tool in summary writing. Graphic organizer is useful as a visual tool to write a summary for it provide concrete and visual guidance (Fatimayin, 2015; Simonsetal, 1998).

V. Conclusion

In conclusion, graphic organizer is fundamental to skilled thinking for it provide information and opportunities for analysis in non-linear form which reading alone and linear outline lack to provide. This study revealed some important findings which have theoretical implications and pedagogical implications in utilizing graphic organizers as a process in assisting summary writing. In term of pedagogical implications, the findings showed significant difference in the overall mean scores of the experimental group in the post-test after utilizing graphic organizers to write summary compared with the control group.

As such, graphic organizers can be used as an alternative method in ESL classrooms to teach summary writing. As stressed by Robinson, et. al. (2006) graphic organizers make it possible for teachers and pupils to see the development of a reading and comprehension process. The findings has pertinent pedagogical implications in summary writing, as it suggest teachers to utilize graphic organizers as an alternative tool in teaching summary writing. Guideline employed in the study can also be used as a guide by teachers as a creative way of teaching summary writing. In term of theoretical implication the findings of this study support the theory of graphic organizers mainly by mind maps by Buzan (1974) and concept maps by Novak (2008).

In addition, the study can be expanded to future research on summary in other languages. This would provide a clear picture of how effective it is in utilizing graphic organizers to write a summary. Also, the unexpected effect of utilizing graphic organizers in summary writing clearly deserves more attention in future. Current study only investigate the effects of utilizing graphic organizers in comprehension (summary writing) ;

as such future researchers can investigate the effects of using graphic organizers in other areas such as writing skills and communication skills.

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